Space Weather Forecast

Issued on Saturday, 10 June 2023 at 01:12 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Moderate-class X-ray flares (R1-R2 radio blackouts). Slight chance of Minor Geomagnetic Storms.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: There are eight sunspot regions on the disc, with a region in the southeast quadrant the largest and most magnetically complex, but relatively inactive. Another notable region in the southwest is weakening sharply. The remaining regions are all mainly benign. Solar activity has been Moderate, with a moderate-class flare originating from a sunspot region located in the southeast quadrant. This has produced a coronal mass ejection (CME), which is yet to be analysed for any Earth-directed component. Otherwise, no Earth-directed CMEs have been observed in available coronagraph imagery.

Solar Wind / Geomagnetic Activity: The solar wind speed are at ambient levels, near 300km/s. The total magnetic field strength was weak, with the north-south component near neutral to slightly weak. Resultant geomagnetic activity was Quiet.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Mainly Low to Moderate solar activity is forecast, with no significantly active regions on the solar disc. A potentially stronger region is due to rotate onto the disc during the next two days although this is low confidence.

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs are expected to affect the Earth, with a low risk of a glancing blow on 11 or 12 June. Fast solar winds may affect the Earth from 10 or 11 June, possibly giving speeds of 500km/s but with low confidence. Geomagnetic activity is forecast to be mainly Quiet, with a slight chance of Active or G1/Minor Storms on 10 or 11 June.

Energetic Particles / Solar Radiation: Solar radiation storms are not expected, however there is a very slight chance of reaching the S1/Minor Storm threshold should any larger X-ray flares occur.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	10	10	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	50	50	50	50
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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